## Unit -II

**Methods of research: Observation, Survey [Interview, Questionnaires], Experimental, Quasi-experimental, Field studies, Cross-Cultural Studies, Phenomenology, Grounded theory, Focus groups, Narratives, Case studies, Ethnography**

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### 1. Experimental Method

Experimental design refers to how participants are allocated to the different groups in an experiment. Types of design include repeated measures, independent groups, and matched pairs designs.

Probably the commonest way to design an experiment in psychology is to divide the participants into two groups, the experimental group, and the control group, and then introduce a change to the experimental group and not the control group.

### Types of Experimental Design

**(i) Independent measures / between-groups**: Different participants are used in each condition of the independent variable.

| IV = sleep | |
|---|---|
| 1. 2 hours sleep | 2. 10 hours sleep |
| Group A (10 students) | Group B (10 students, matched for age, gender, normal sleeping length) |
| DV: Reaction Time | Reaction Time |

SHOUT
SHARE
IT

**Cons.**

- More people are needed than with the repeated measures design (i.e., more time consuming).
- Differences between participants in the groups may affect results, for example; variations in age, gender or social background. These differences are known as participant variables (i.e., a type of extraneous variable).

**Pro**:

- Avoids order effects (such as practice or fatigue) as people participate in one condition only. If a person is involved in several conditions, they may become bored, tired and fed up by the time they come to the second condition, or becoming wise to the requirements of the experiment!

**Control**

- After the participants have been recruited, they should be randomly assigned to their groups. This should ensure the groups are similar, on average (reducing participant variables)

**(ii) Repeated measures /within-groups**: The same participants take part in each condition of the independent variable.

**Pros.**

- As the same participants are used in each condition, participant variables (i.e., individual differences) are reduced.
- Fewer people are needed as they take part in all conditions (i.e., saves time).

## Cons

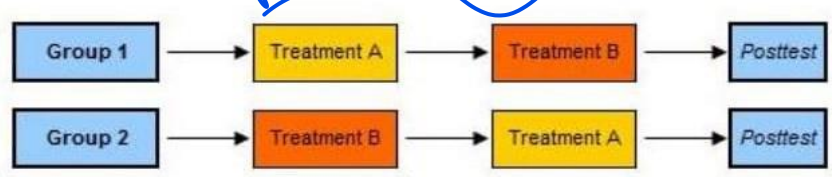
There may be order effects. Order effects refer to the order of the conditions having an effect on the participants' behaviour. Performance in the second condition may be better because the participants know what to do (i.e., practice effect). Or their performance might be worse in the second condition because they are tired (i.e., fatigue effect). This limitation can be controlled using counterbalancing.

**Control**: To combat order effects the researcher counter balances the order of the conditions for the participants. Alternating the order in which participants perform in different conditions of an experiment.

## Counterbalancing

Counterbalancing is a technique used to deal with order effects when using a repeated measures design. With counterbalancing, the participant sample is divided in half, with one half completing the two conditions in one order and the other half completing the conditions in the reverse order.

**Example- Effect of visual and auditory task on reaction time.**



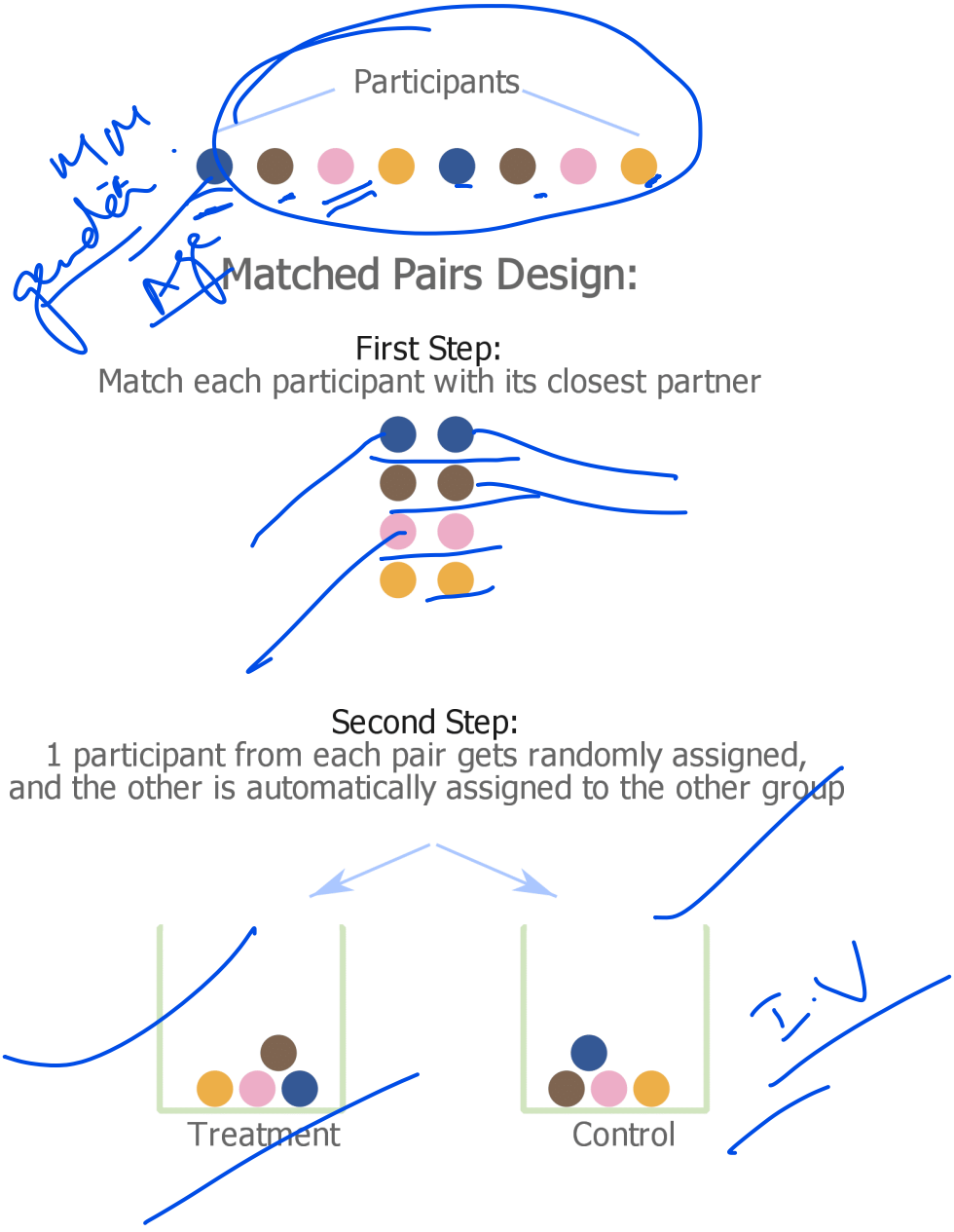
**(iii) Matched pairs**: Each condition uses different participants, but they are matched in terms of important characteristics, e.g., gender, age, intelligence, etc.

**Pro**:

- Reduces participant variables because the researcher has tried to pair up the participants so that each condition has people with similar abilities and characteristics.
- Avoids order effects, and so counterbalancing is not necessary.

**Cons**

- Very time-consuming trying to find closely matched pairs.
- Impossible to match people exactly, unless identical twins!



## 2. Quasi Experiment

A quasi-experimental design is **one that looks a bit like an experimental design but lacks the key ingredient – random assignment**. Like a true experiment, a quasi-experimental design aims to establish a cause-and-effect relationship between an independent and dependent variable.

Subjects are assigned to groups based on non-random criteria.

Quasi-experimental design is a useful tool in situations where true experiments cannot be used for ethical or practical reasons.

### Types of Quasi Experiment

1. Non-equivalent groups design
2. Regression Discontinuity
3. Natural Experiments

### 1. Non-equivalent groups design

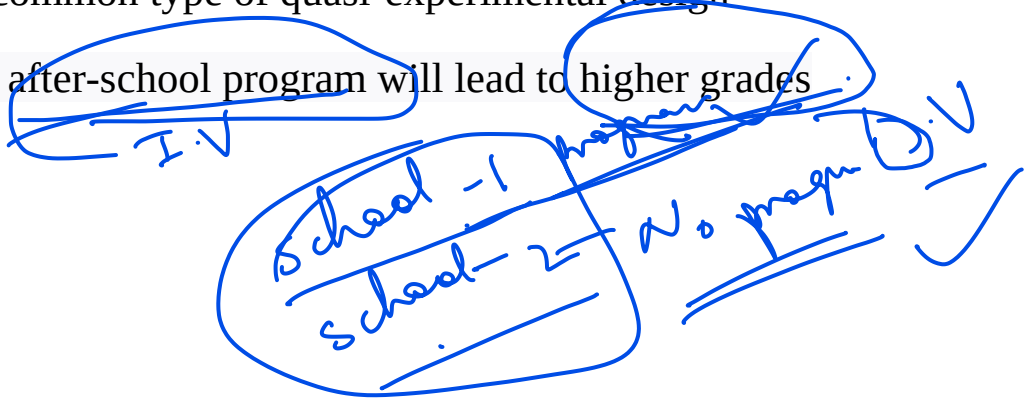
In non-equivalent group design, the researcher chooses existing groups that appear similar, but where only one of the groups experiences the treatment.

In a true experiment with random assignment, the control and treatment groups are considered equivalent in every way other than the treatment. But in a quasi-experiment where the groups are not random, they may differ in other ways—they are non-equivalent groups.

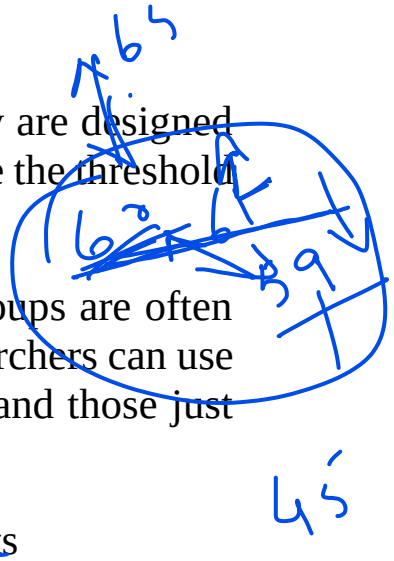
When using this kind of design, researchers try to account for any confounding variables by controlling for them in their analysis or by choosing groups that are as similar as possible.

This is the most common type of quasi-experimental design

Example- A new after-school program will lead to higher grades



2. **Regression Discontinuity**



Many potential treatments that researchers wish to study are designed around an essentially arbitrary cut-off, where those above the threshold receive the treatment and those below it does not.

Near this threshold, the differences between the two groups are often so minimal as to be nearly non-existent. Therefore, researchers can use individuals just below the threshold as a control group and those just above as a treatment group.

Example- Program A will be for High Achieving students

**3. Natural Experiments**

In both laboratory and field experiments, researchers normally control which group the subjects are assigned to. In a natural experiment, an external event or situation ("nature") result in the random or random-like assignment of subjects to the treatment group.

Even though some use random assignments, natural experiments are not considered to be true experiments because they are observational in nature.

Although the researchers have no control over the independent variable, they can exploit this event after the fact to study the effect of the treatment.

**3. Field Study**

**It** involves collecting data outside of an experimental or lab setting. This type of data collection is most often done in natural settings or environments and can be done in a variety of ways for various disciplines. Field studies are known to be expensive and timely; however, the amount and diversity of the data collected can be invaluable.

Field studies collect original or unconventional data via face-to-face interviews, surveys, or direct observation. This research technique is usually treated as an initial form of research because the data collected is specific only to the purpose for which it was gathered. Therefore, it is not applicable to the general public.

Filed study is an ex-post-facto (after the fact) study in which the investigators attempt to trace an effect which has already occurred to its possible cause. In other words, the research is conducted after the events have occurred.

Example – 1. Case of lung cancer.

he may find the cause of lung cancer is excessive smoking and chronic cough.

2. Determinants of academic achievement among primary school children.

Findings- Socio-economic status, intelligence, motivation are related to academic achievement.

**4. Survey Study**

A survey method is a process, tool, or technique that you can use to gather information in research by asking questions to a predefined group of people. Typically, it facilitates the exchange of information between the research participants and the person or organization carrying out the research.

Survey methods can be qualitative or quantitative depending on the type of research and the type of data you want to gather in the end. For qualitative research, a face-to-face interview or a focus group is conducted and for quantitative method, well defined questionnaire is used.

**Types of Survey Method**

1. Interview

   I. Structured interview
   II. Unstructured interview

2. Questionnaire

3. Panel Survey

4. Telephone Survey

**5. Observation Method**

Observation refers to watching and listening to the behaviour of other persons over time without manipulating and controlling it and record findings in ways that allow some degree of analytical interpretation and discussion.

**Purpose of Observation**

- ✓ To capture or study human behaviour as it actually happens.
- ✓ To provide graphic description of real that can be acquired in other ways.
  Example- how does a person actually go about learning to be engineer, doctor or professor.
- ✓ To explore those variables which were important but overlooked.

**Types of Observation**

1. Controlled observation
2. Naturalistic observation
3. Participant observation
4. Non-Participant observation

## 1. Controlled Observation

This is also known as systematic observation. The researcher decides where the observation will take place, at what time, with which participants, in what circumstances and uses a standardized procedure. Participants are randomly allocated to each independent variable group. Rather than writing a detailed description of all behaviour observed, it is often easier to code behaviour according to a previously agreed scale using a behaviour schedule (i.e., conducting a structured observation).

The researcher systematically classifies the behaviour they observe into distinct categories. Coding might involve numbers or letters to describe a characteristic, or use of a scale to measure behaviour intensity.

The categories on the schedule are coded so that the data collected can be easily counted and turned into statistics. Controlled observations are usually overt as the researcher explains the research aim to the group, so the participants know they are being observed.

Controlled observations are also usually **non-participant** as the researcher avoids any direct contact with the group, keeping a distance

Example- Research on sleep, Relation of infants with mother.

**Strength**

1. Controlled observations can be easily replicated by other researchers by using the same observation schedule.
2. The data obtained from structured observations is easier and quicker to analyse as it is quantitative (i.e., numerical) - making this a less time-consuming method compared to naturalistic observations.

3. Controlled observations are fairly quick to conduct which means that many observations can take place within a short amount of time. This means a large sample can be obtained resulting in the findings being representative and having the ability to be generalized to a large population.

**Limitation**

Controlled observations can lack validity due to the Hawthorne effect/demand characteristics. When participants know they are being watched they may act differently.

**2. Naturalistic Observation**

This technique involves observing, studying the spontaneous behaviour of participants in natural surroundings. The researcher simply records what they see in whatever way they can.

In unstructured observations, the researcher records all relevant behaviour without system. There may be too much to record and the behaviours recorded may not necessarily be the most important so the approach is usually used as a pilot study to see what type of behaviours would be recorded.

**Strength**

1. By being able to observe the flow of behaviour in its own setting studies have greater ecological validity.
2. Like case studies, naturalistic observation is often used to generate new ideas. Because it gives the researcher the opportunity to study the total situation it often suggests avenues of inquiry not thought of before.

**Limitations-**

1. Natural observations are less reliable as other variables cannot be controlled. This makes it difficult for another researcher to repeat the study in exactly the same way.
2. A further disadvantage is that the researcher needs to be trained to be able to recognize aspects of a situation that are psychologically significant and worth further attention.

3. With observations, we do not have manipulations of variables (or control over extraneous variables) which means cause and effect relationships cannot be established.

## 3. Participant Observation

Participant observation is a variant of the above (natural observations) but here the researcher joins in and becomes part of the group they are studying to get a deeper insight into their lives.

### Limitations

1. It can be difficult to get time / privacy for recording. For example, with covert observations researchers can't take notes openly as this would blow their cover. This means they have to wait until they are alone and rely on their memory. This is a problem as they may forget details and are unlikely to remember direct quotations.
2. If the researcher becomes too involved, they may lose objectivity and become bias. There is always the danger that we will "see" what we expect (or want) to see. This is a problem as they could selectively report information instead of noting everything they observe. Thus, reducing the validity of their data.

### Recording of Data

With controlled / structured observation studies an important decision the researcher has to make is how to classify and record the data. Usually this will involve a method of sampling. The three main sampling methods are:

1. **Event sampling**. The observer decides in advance what types of behaviour (events) she/he is interested in and records all occurrences. All other types of behaviour are ignored.
2. **Time sampling**. The observer decides in advance that observation will take place only during specified time periods (e.g., 10 minutes

10 mint

every hour, 1 hour per day) and records the occurrence of the specified behaviour during that period only.

3. **Instantaneous (target time) sampling**. The observer decides in advance the pre-selected moments when observation will take place and records what is happening at that instant. Everything happening before or after is ignored.

4. **Non-Participant Observation**

When the observer observes the group passively from a distance without participating in the group activities, it is known as non-participant observation. Here he does not try to influence them or take part in the group activities.

One really cannot imagine a kind of relationship, when the researcher is always present but never participates. This situation is hardly conducive for both the observer and the group. A combination of both participant and non-participant method is sometimes selected.

**Strengths**

- ✓ Objectivity and neutrality
- ✓ Command respect and co-operation
- ✓ More willingness of the respondent
- ✓ Careful analysis

**Limitations-**

- ✓ Subjectivity
- ✓ Inadequate observation:
- ✓ Unnatural and formal information
- ✓ Inconvenience to the respondents